MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2016/2017

TSE 2231– SOFTWARE ENGINEERING FUNDAMENTALS
(All sections / Groups)

11 MARCH 2017
2.30 p.m – 4.30 p.m
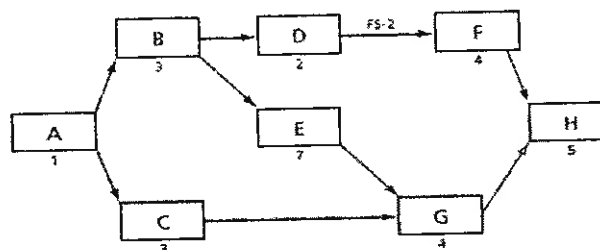(2 Hours)

INSTRUCTIONS TO STUDENT

1. This Question paper consists of 4 pages with 5 Questions only.

2. Answer all **FIVE** questions. All questions carry equal marks and the distribution of the marks for each question is given.

3. Please write all your answers in the Answer Booklet provided.

QUESTION 1

a. During the early days of computing, software program were written to make the hardware works. However, as computer applications evolve, the need to create a larger software programs rises. Due to this need, software engineering is introduced to development of such programs.

    i. Define software engineering.   (2 marks)

    ii. Describe why software engineering is so important for software development.   (2 marks)

b. Define **TWO (2)** principles underlying agile methods which lead to the accelerated development and deployment of software.   (4 marks)

c. Describe **TWO (2)** reasons why evolutionary models are considered by many to be the best approach to software development in a modern context?   (4 marks)

QUESTION 2

a. Produce **THREE (3)** dimensions of software quality.   (3 marks)

b. A schedule was developed for a project to install windows in an apartment building. The project is a rush job, and the contractor has agreed to schedule the work on a single shift basis but will work seven days per week until the job is done. The project is to begin on May 1. Answer the following questions based on **Figure 1**:

Figure 1

    i. Identify the day in May when activity D has its early finish date?   (1 mark)

    ii. Explain free float (slack time) and show what is the free float for activity D and F.   (3 marks)

    iii. Show the critical path of the project.   (3 marks)

c. Show **ONE (1)** method that can be used by a project manager to Identify Risk in a project.   (2 marks)

Continued ....

QUESTION 3

a.   Deliberate any **TWO (2)** practices software engineers should follow to enhance the quality of software produced by their team.   (4 marks)

b.   XYZ Manufacturing has just hired a software consultant to develop a new application to manage its widgets production facility. The consultant tells the company's production manager, who is an old timer with many years of experience, to write down all the requirements in as much detail as possible. The consultant will then take these requirements with him to his cabin near the mountain where he can work in isolation and without interruption. He'll return to XYZ Manufacturing in three months with the completed application.

   i.   Relate **TWO (2)** problems you see with this arrangement.   (4 marks)

   ii. If you are the consultant, demonstrate how would you work with XYZ Manufacturing that will increase your likelihood of success.
                                                                      (4 marks)

QUESTION 4

a.   As software developers, we often build models during design phase. Relate **FOUR (4)** reasons for building these models.   (4 marks)

b.   To give an exam, a coordinator first notifies the students of the exam date and the materials to be covered. She then prepares the exam paper (with sample solutions), gets it copied to produce enough copies for the class, and hands it out to students on the designated time and location. The students write their answers to exam questions and hand in their papers to the coordinator. The coordinator then gives the exam papers to the lecturers, along with sample solutions to each question, and gets them to mark it. She then records all marks and returns the papers to the students.

   i.   List all the actor participating in the processes above.   (2 marks)

   ii. List the operation that is carried out during each interaction by each actor.   (3 marks)

   iii. Draw a sequence diagram that represents these processes.   (3marks)

QUESTION 5

a. Define software verification technique and show **ONE (1)** method of applying this technique in software development.   (3 marks)

b. You are developing EasyLock software system for controlling the locks of the doors of a car. The car has four doors which locks can be activated electronically. Each door has controls for locking and unlocking that door. In addition, all doors can be locked or unlocked simultaneously by a remote control. Draw a use case diagram for Easylock.   (5 marks)

c. Show why a customer should be interested in having an excellent acceptance test plan as part of the requirements document?   (4 marks)

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